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IUPAC STATUTES AND BYLAWS
(Impact on Commissions, Committees, Membership and Officers)

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I. Early History

The International Committee on Atomic Weights (ICAW) published their first report for the year, 1901, in the first issue of the *Chemische Berichte* of 1902. The ICAW became affiliated with the International Association of Chemical Societies (IACS) in 1913. The ICAW operated under the Presidency of Frank W. Clarke for their first twenty years.

The International Union of Pure and Applied Chemistry (IUPAC) was formed in 1919 by a group of industrial chemists from the countries of the Allied Forces, i.e., those who fought the Central Powers in World War I (Belgium, England, France, Italy and the United States). IUPAC became the chemical branch of the International Research Council (IRC). IUPAC member countries voted to dissolve the IACS in 1919. At their 1920 Conference, the IUPAC Council established an Atomic Weights Commission and they asked the old ICAW to continue their work. Provisional membership of the Commission was approved after Phillippe Guye's proposed membership was disallowed because Switzerland did not adhere to the IRC statutes. At the 1921 Conference, a proposal by Guye for a reorganization of the ICAW into a Committee on Chemical Elements with a sub-committee on Atomic Weights was made. George Urbain, a member of the old ICAW, was elected as chairman of this Committee.

The IRC accepted neutral countries, who agreed not to have relations with any countries from the Central Powers. IUPAC did not become international in scope until 1930, when it simultaneously changed its name to the International Union of Chemistry (IUC). This change was the request of and the condition for Germany accepting membership in the Union. In 1928, the Committee on Chemical Elements had been criticized for failure to publish an annual Table of Atomic Weights since 1923. In view of possible liaison with the German Committee, Urbain recommended the reorganization of the Committee on Chemical Elements into three separate committees, including a Committee on Atomic Weights of the IUC and in 1930 this change was also made. This revised Committee then worked under the Presidency of Paul Baxter for the next nineteen years. In 1931, the IRC, whose statutes barred any former Central Powers from membership in any of its Unions, revised its statutes and became the International Council of Scientific Unions (ICSU).

II. Funding and Membership

In 1922, a Finance Committee (FC) was created within IUPAC. The FC determined that IUPAC dues must only go towards administrative expenses. Any further amounts raised by IUPAC could be used for their scientific bodies. In 1924, the FC emphasized the principle that travel expenses for delegates were the responsibility of National Federations i.e., National Adhering Organizations (NAOs). In 1926, the IUPAC President stated that work of the Committees is delayed by both a lack of zeal of members in replying to letters and their irregular attendance at meetings because of the travel costs. He stated that the FC should examine the feasibility of allowing travel expenses. In 1926, the FC proposed a total budget allocation of \$1 000 for the travel or other expenses of Committee members and the fund was first used in 1927 and was, in fact, over subscribed by \$500. In 1928, a criticism was made that the practice of nominating replacements for absent Titular Members by delegates present at Committee meetings led to a waste of time and effort.

The 1920 Bylaws provided for three year term membership for Permanent Committees. In the 1928 revision of the Bylaws, members of permanent Committees were to be elected to four year terms. In 1930, Council provides these rules for Committees: Committees should be composed of specialists, who cannot be replaced temporarily. The Committee has the right to invite competent persons to give it such advice as it desires. Committees having more than six members should nominate a Working Committee from among its members. (It can be noted that in those days, the Atomic Weights Committee never had more than six members). The Committee President must prepare and distribute the agenda for the next meeting to Committee members at least 3 months before the meeting. It was also agreed that only permanent and definitive members should take part in these Committee meetings and a majority of the Committee work should be done by correspondence in advance of the meeting. It was accepted that attendance of all Commission members at meetings was a primary condition for a successful meeting.

In the 1938 revision of the Bylaws, it was reiterated the scientific Committees of IUC must be composed entirely of specialists, who can be Titular Members elected by the Committee on a personal basis or Delegated Members of interested organizations (Bureau of Standards or Research Institutes) approved by the Committee and ratified by Council. Only these members had a valid vote. Also allowed as consultants to the Committee would be National Representatives from countries adhering to the IUC and designated by their NAOs and observers invited by the Committee chairman. The number of members of the Committee was not limited. All members, officers, subcommissions were elected for a period of four years. The Committee chairman could refuse to accept any Observer proposed by a National Delegation to attend that Committee's meeting. (The designation "Committee" and "Commission" was used indiscriminately in IUPAC).

In the 1949 revision, the name of the Union changed from IUC and it reverted back to IUPAC. This change was in recognition of the importance of industrial research. In the 1951 Bylaw revision, Titular and Delegated Members must be authorities in the Committee's field and scientifically recognized by their NAOs. They had to be willing and

able to do Committee work and agree to do what the Committee President wanted. This avoided "undesirables" who had been foisted upon some Committees in the past.

Chemical Divisions (originally called Sections) were created (in the 1949 revision with additional Statute changes in 1951) to give direction, supervise work and resolve difficulties occurring within their Committees. This Statute also limited the number of Titular Members of a Committee to ten members. Other categories of Committee members was unlimited but only Titular Members could draw on grants for travel and hotel expenses for meetings. Titular and Delegated Members were to be nominated for four years and could be reelected for four years, after which they shall not be eligible for election for the next two years. In 1949, the Inorganic Division consisted of an Atomic Weights and Inorganic Nomenclature Commissions. For the 1951 Conference, Committee members could expect \$200 toward their travel expenses.

In 1953, the IUPAC President recommended that candidates for any Committees must have an interest in the Committee matters and be willing to sacrifice some of their own time. He also recommended that Committee members be allocated specific tasks to be done in the interval between the Committee's meetings. In 1955, this President acknowledged a need of standing Committees to maintain a more or less continuous survey of a given field and to take action whenever necessary. In 1955, the Section (Division) President recommended that Committee work must be confined to international usage, such as symbols, nomenclature and atomic weights.

In 1959, IUPAC Council adopted a proposal for introduction of Associate-non-Titular Members (or Associate Members), who were authorities in their field and were appointed for a fixed period or for a particular defined task but they were not entitled to travel or subsistence expenses. At this time, the IUPAC President noted that the work of Commission members at meetings and at home merits the thanks and recognition of chemists the world over. In addition to their time, members should not have to make financial sacrifices to attend meetings.

In 1961, IUPAC Council resolved to remove a previous ceiling of US \$400 travel allowance limit. It also effectively reduced the maximum 10 titular members on a Commission (allowed by statute) to 8 members, except by IUPAC Executive Committee approval.

In the 1965 Statutes revision, the grades of membership of Commissions became Titular (with a vote) and Associate (without a vote) and the grade of Delegate (with a vote) disappeared. A limit of eight Titular Members (without special permission) was imposed. There could be no more Associate Members than the total number of Titular Members.

In 1970, the Executive Committee defined the mechanism of approval for standards and methods based on the best available experimental data at any time (such as atomic weight values) as being exempt from the usual IUPAC eight month rule of a "tentative recommendation" (bylaw 2.11) that existed for nomenclature, symbols and units approval.

In the 1975 Statutes revision, the service of Titular Members for a second four year term was still maintained but special permission from the IUPAC Bureau was required for reappointment of a Titular Member who had served eight years, whether consecutive or not and for the rotation of a person through alternate periods of Titular and Associate membership. The total sum of years of service as a Titular Member, including service as an Officer shall not exceed ten years.

In 1980, the IUPAC Bureau ruled that for financial reasons, Commissions would get approval for only six Titular Members instead of eight Members.

In the 1985 Bylaws revision, the ten year limit of service as a Titular Member now applied to broken as well as consecutive service. Special permission for reappointment of a person who had served eight years as a Titular Member could only be granted for two additional years. This two year limit also applied to a person, who had served twelve years in alternate Titular and Associate Membership, whether consecutive or not. NAOs were required to provide evidence of special circumstances to allow reappointment of a National Representative beyond a total of twelve years.

In the 1991 Bylaws revision, the right of only Titular Members to receive contributions towards their travel and subsistence was augmented to allow Associate Members as well as members of subcommittees under exceptional circumstances to receive funding on the recommendation of the Division President and with agreement of the Treasurer.

In the 1996 Bylaws revision, Division Committees were allowed to elect Associate Members, who had full voting rights and Associate Members of Commissions were granted full voting rights also.

In the 1998 Bylaws revision, the terms of service of Titular and Associate Members was reduced from four years to two years with the possibility of reelection for two years of Membership up to a maximum of eight years. Twelve years remained the limit of total service in all grades of membership. Whereas NAOs previously had to approve appointments, now they merely had to be notified of appointments of Titular and Associate Memberships.

In the 2000 Bylaws revision, the right of Titular Members to receive funding was replaced by the possibility of IUPAC members receiving funding authorized by the Treasurer. The Bureau would establish the guidelines and procedures for expenses.

In the 2002 Bylaws revision, the right of Commission members in a Division to vote for Division members was replaced by the Bureau specifying who would be eligible to vote. In 2003, the Bureau decided that Commission members would not be eligible to vote in their Division's elections.

III. Summary of the Impact of Significant Changes

As a Standards Committee, the Atomic Weights Commission operated for many years with a steady membership of experts in the field. For approximately seventy years with one exception, there were four Presidents. With the changes in bylaws, in less than half the previous amount of time, there have been twice as many chairmen. Over the first fifty years, there were a total of about a dozen experts on atomic weights serving as members of the Commission. At the present time, we usually have twice that number attending any one of our recent meetings. I will not address either the advantages or disadvantages of these two situations but merely note the facts.

In the case of many international committees, the need for constant turnover in membership might have a beneficial effect on the operation of the committee by acquainting more members of the chemical community with the work of the committee. Unfortunately, in the case of a standards committee, it is critical for members to be aware of the rationale for all past decisions on standard values. Some choices may seem pertinent but were considered in the past and discarded for good reasons. Lack of the history provided by past members usually result in wasted effort trying to understand why certain choices were not taken previously. In addition, the interpretation of experimental data (both past and present) in a consistent manner is a requirement but this type of information is lost because the IUPAC bylaws force all members with at least twelve years of experience off of the Committee. The cumulative experience of the Commission is basically lost to the newer members on a continuing cycle.

In the early years of IUPAC, an IUPAC President made a point that the work of Commissions is delayed by the irregular attendance of the membership at meetings due to the expense of travel costs and the attendance of all Commission members at meetings was a primary condition for a successful meeting. These lessons seem to be lost when funding for a recent proposal to hold a meeting of the Commission was rejected by an Evaluation Committee referee on the basis that IUPAC did not want to fund Commission's meetings. Even the present bylaws supposedly still allow funding of a Commission meeting after recommendation by the appropriate Division Committee.

IV. Comments

At Brisbane, it was thought that the vote to continue our Commission was a major victory but it turns out not to be true. All of the restrictions of the Bylaws on membership, limited service of the officers and members and the various requirements on annual reports were continued but the automatic funding of members was removed. Any advantages for the Commission on Isotopic Abundances and Atomic Weights (CIAAW) to continue to exist within IUPAC were removed, while all of the disadvantages remained. It might be noted that the only other Commission to be continued within IUPAC was the Commission on Physicochemical Symbols, Terminology and Units within Division I (Physical and Biophysical Chemistry). This Commission (I.1) consists of a chairman and two members.

In the past, CIAAW met at the IUPAC General Assembly (GA) with funding made available from the IUPAC Secretariat for the travel and per diem of titular members. All other members of the Commission and various sub-committees were funded either from the budget of the Inorganic Chemistry Division for sub-committee projects and meetings to be held immediately before the GA but at the site of or in proximity to the GA site or from personal member's funds or that of their host institutions (for those members who were still employed).

Within the new structure of IUPAC, the funding of titular members of CIAAW has now been terminated with the resulting loss of about half of the total previous past budgets of CIAAW. The feasibility of funding both project work and the hosting of a Commission meeting at the IUPAC GA has now disappeared. This reality was not appreciated by CIAAW at the Brisbane GA.

How should CAWIA operate in the future without ever holding a meeting of all Commission and sub-committee members in the future? How will the new CAWIA members be selected in the absence of past practice of inviting potential candidates to attend CAWIA meetings to be assessed by all members in advance of any election? How should a "Standards Committee" operate with the complete loss of all of their past history, when all former members are now excluded from the previous face to face meeting discussions?

V. Conclusions

From the history of the Commission, it began with a large number of members. It was found that it was difficult to gain agreement by correspondence between such a large group. A smaller group was elected to operate by correspondence and make decisions. It operated successfully for a half century in this manner. With funding available, the Commission membership grew larger but they discussed all matters face to face at Commission meetings. Subcommittees were appointed to pursue specialized topics and members reported and discussed their subcommittee results directly to the Commission at the face to face meetings.

With the change in the bylaws, future face to face meetings will no longer be an option for the members of the Commission and its subcommittees, unless all members provide their own funds or those of their host institutions. The funding and membership restrictions are all serious topics, which require a thorough discussion.

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